

STATUS OF CLAIMS

Claims 1 – 10 are pending.

Claims 1 – 10 are subject to restriction requirement.

REMARKS

Restriction Requirement

Restriction has been required pursuant to 35 U.S.C. § 121, between Group I Claims 1-9, drawn to a semiconductor material made from powders, and Group II Claim 10, drawn to an aggregate exhibiting energy gaps of a different value. The Office Action alleges that the inventions listed as Group I and Group II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I fails to disclose the special technical feature of forming an aggregate exhibiting energy gaps of a different value.

In response to the present Office action, and pursuant to the phone conversation between Examiner Smith and Edward J. Howard on September 15, 2009, Applicant provisionally elects Group I (Claims 1-9), for prosecution on the merits without prejudice and with traverse.

Applicant respectfully traverses the restriction requirement as improper for the following reasons and requests it be withdrawn. The present application is an application filed under the Patent Cooperation Treaty. It appears the Examiner has considered the unity of invention based on the principles of United States Patent Law and not the principles of the PCT, and should not have contested the unity of the claims of the present patent application which comply with PCT requirements. Article 3 (4) (iii) of the Patent Cooperation Treaty (PCT) (Exhibit A), states that the "international application shall comply with the prescribed requirement of unity of invention", such compliance being checked by the International Searching Authority (See Article 17-3 (a)) (Exhibit B).

In the present case, the unity of the present application was not contested during the international phase by the International Examiner. The administrative instructions under the Patent Cooperation Treaty specifies in Section 206 (Exhibit C) that "the determination by the International Searching Authority, the International Preliminary Examining Authority, and the designated and elected Offices whether an international application complies with the requirement of unity of invention under Rule 13 (Exhibit D) shall be made in accordance with Annex B". Annex B (Exhibit E) specifies, in point (e) that "the method for determining unity of invention under Rule 13.2 shall be construed as permitting, in particular, the inclusion of any one of the following combinations of claims of different categories in the same international application. "

13.2 Circumstances in Which the Requirement of Unity of Invention is to Be Considered Fulfilled

Where a group of inventions is claimed in one and the same international application, the requirement of unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed invention, considered as a whole, makes over the prior art.

Furthermore, Article 27 (1) (Exhibit F) states that "no national law shall require compliance with requirements relating to the form or contents of the international application different from or additional to those which are provided for in this Treaty and the Regulations". This point is emphasized by the PCT Applicant's Guide, Volume 1 – International Phase, point 138 (Exhibit G) that specifies that "an international application which complies with the unity of invention requirements laid down in Rule 13 must be accepted by all the designated and elected Offices, since Article 27(1) does not allow any national law (as defined in Article 2(x)) to require compliance with requirements relating to the contents of the international application different from or additional, to those provided for in the PCT".

In view of the foregoing, Applicant respectfully submits that the present restriction under 35 USC 121 and 35 USC 372 is improper; reconsideration and withdrawal of this restriction requirement is requested.

CONCLUSION

Applicant believes he has addressed all outstanding grounds raised by the Examiner and respectfully submits the present case is in condition for allowance, early notification of which is earnestly solicited.

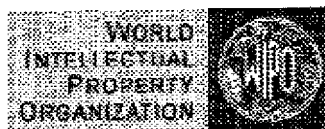
Should there be any questions or outstanding matters, the Examiner is cordially invited and requested to contact Applicant's undersigned attorney at his number listed below.

Respectfully submitted,

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Dated: September 18, 2009

EXHIBIT A



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INTERNATIONAL TREATIES Patent Cooperation Treaty (PCT)

CHAPTER I INTERNATIONAL APPLICATION AND INTERNATIONAL SEARCH

Article 3 The international Application

- (1) Applications for the protection of inventions in any of the Contracting States may be filed as international applications under this Treaty.
- (2) An international application shall contain, as specified in this Treaty and the Regulations, a request, a description, one or more claims, one or more drawings (where required), and an abstract.
- (3) The abstract merely serves the purpose of technical information and cannot be taken into account for any other purpose, particularly not for the purpose of interpreting the scope of the protection sought.
- (4) The international application shall:
 - (i) be in a prescribed language;
 - (ii) comply with the prescribed physical requirements;
 - (iii) comply with the prescribed requirement of unity of invention;
 - (iv) be subject to the payment of the prescribed fees.

[<<](#) [>>](#)

[Table of Contents](#)

EXHIBIT B



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[Home](#) [IP Services](#) [PATENTSCOPE®](#) [Patent Cooperation Treaty](#) [Legal Texts](#) [Treaty](#)

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International Treaties

Patent Cooperation Treaty

Article 17

Procedure Before the International Searching Authority

(1) Procedure before the International Searching Authority shall be governed by the provisions of this Treaty, the Regulations, and the agreement which the International Bureau shall conclude, subject to this Treaty and the Regulations, with the said Authority.

(2) (a) If the International Searching Authority considers

(i) that the international application relates to a subject matter which the International Searching Authority is not required, under the Regulations, to search, and in the particular case decides not to search, or

(ii) that the description, the claims, or the drawings, fail to comply with the prescribed requirements to such an extent that a meaningful search could not be carried out,

the said Authority shall so declare and shall notify the applicant and the International Bureau that no international search report will be established.

(b) If any of the situations referred to in subparagraph (a) is found to exist in connection with certain claims only, the international search report shall so indicate in respect of such claims, whereas, for the other claims, the said report shall be established as provided in Article 18.

(3) (a) If the International Searching Authority considers that the international application does not comply with the requirement of unity of invention as set forth in the Regulations, it shall invite the applicant to pay additional fees. The International Searching Authority shall establish the international search report on those parts of the international application which relate to the invention first mentioned in the claims ("main invention") and, provided the required additional fees have been paid within the prescribed time limit, on those parts of the international application which relate to inventions in respect of which the said fees were paid.

(b) The national law of any designated State may provide that, where the national Office of that State finds the invitation, referred to in subparagraph (a), of the International Searching Authority justified and where the applicant has not paid all additional fees, those parts of the international application which consequently have not been searched shall, as far as effects in that State are concerned, be considered withdrawn unless a special fee is paid by the applicant to the national Office of that State.

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[Table of Contents](#)

Section 206
Unity of Invention

The determination by the International Searching Authority, the International Preliminary Examining Authority and the designated and elected Offices whether an international application complies with the requirement of unity of invention under Rule 13 shall be made in accordance with Annex B.

Section 207
Arrangement of Elements and Numbering of Sheets of the International Application

(a) In effecting the sequential numbering of the sheets of the international application in accordance with Rule 11.7, the elements of the international application shall be placed in the following order: the request, the description (other than any sequence listing part thereof), the claims, the abstract, the drawings, the sequence listing part of the description (where applicable).

(b) The sequential numbering of the sheets shall be effected by using the following separate series of numbering:

(i) the first series applying to the request only and commencing with the first sheet of the request,

(ii) the second series commencing with the first sheet of the description (other than any sequence listing part thereof) and continuing through the claims until the last sheet of the abstract,

(iii) if applicable, a further series applying to the sheets of the drawings only and commencing with the first sheet of the drawings; the number of each sheet of the drawings shall consist of two Arabic numerals separated by a slant, the first being the sheet number and the second being the total number of sheets of drawings (for example, 1/3, 2/3, 3/3), and

(iv) if applicable, preferably, a further series applying to the sequence listing part of the description commencing with the first sheet of that part.

Section 208
Sequence Listings

Any nucleotide and/or amino acid sequence listing ("sequence listing"), whether on paper or in electronic form, filed as part of the international application, or furnished together with the international application or subsequently, shall comply with Annex C.

Section 209
Indications as to Deposited Biological Material on a Separate Sheet

(a) To the extent that any indication with respect to deposited biological material is not contained in the description, it may be given on a separate sheet. Where any such indication is so given, it shall preferably be on Form PCT/RO/134 and, if furnished at the time of filing, the said Form shall, subject to paragraph (b), preferably be attached to the request and referred to in the check list referred to in Rule 3.3(a)(ii).

(b) For the purposes of designated Offices which have so notified the International Bureau under Rule 13bis.7(a), paragraph (a) applies only if the said Form or sheet is included as one of the sheets of the description of the international application at the time of filing.

Section 210
[Deleted]

EXHIBIT D



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International Treaties Regulations under the PCT

Rule 13 Unity of Invention

13.1 Requirement

The international application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention").

13.2 Circumstances in Which the Requirement of Unity of Invention Is to Be Considered Fulfilled

Where a group of inventions is claimed in one and the same international application, the requirement of unity of invention referred to in [Rule 13.1](#) shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

13.3 Determination of Unity of Invention Not Affected by Manner of Claiming

The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim.

13.4 Dependent Claims

Subject to [Rule 13.1](#), it shall be permitted to include in the same international application a reasonable number of dependent claims, claiming specific forms of the invention claimed in an independent claim, even where the features of any dependent claim could be considered as constituting in themselves an invention.

13.5 Utility Models

Any designated State in which the grant of a utility model is sought on the basis of an international application may, instead of [Rules 13.1 to 13.4](#), apply in respect of the matters regulated in those Rules the provisions of its national law concerning utility models once the processing of the international application has started in that State, provided that the applicant shall be allowed at least two months from the expiration of the time limit applicable under [Article 22](#) to adapt his application to the requirements of the said provisions of the national law.

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[Table of Contents](#)

EXHIBIT E

ANNEX B UNITY OF INVENTION

PAGE 1 OF 2

(a) **Unity of Invention.** Rule 13.1 deals with the requirement of unity of invention and states the principle that an international application should relate to only one invention or, if there is more than one invention, that the inclusion of those inventions in one international application is only permitted if all inventions are so linked as to form a single general inventive concept.

(b) **Technical Relationship.** Rule 13.2 defines the method for determining whether the requirement of unity of invention is satisfied in respect of a group of inventions claimed in an international application. Unity of invention exists only when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding "special technical features". The expression "special technical features" is defined in Rule 13.2 as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art. The determination is made on the contents of the claims as interpreted in light of the description and drawings (if any).

(c) **Independent and Dependent Claims.** Unity of invention has to be considered in the first place only in relation to the independent claims in an international application and not the dependent claims. By "dependent" claim is meant a claim which contains all the features of another claim and is in the same category of claim as that other claim (the expression "category of claim" referring to the classification of claims according to the subject matter of the invention claimed—for example, product, process, use or apparatus or means, etc.).

(i) If the independent claims avoid the prior art and satisfy the requirement of unity of invention, no problem of lack of unity arises in respect of any claims that depend on the independent claims. In particular, it does not matter if a dependent claim itself contains a further invention. Equally, no problem arises in the case of a genus/species situation where the genus claim avoids the prior art. Moreover, no problem arises in the case of a combination/subcombination situation where the subcombination claim avoids the prior art and the combination claim includes all the features of the subcombination.

(ii) If, however, an independent claim does not avoid the prior art, then the question whether there is still an inventive link between all the claims dependent on that claim needs to be carefully considered. If there is no link remaining, an objection of lack of unity *a posteriori* (that is, arising only after assessment of the prior art) may be raised. Similar considerations apply in the case of a genus/species or combination/subcombination situation.

(iii) This method for determining whether unity of invention exists is intended to be applied even before the commencement of the international search. Where a search of the prior art is made, an initial determination of unity of invention, based on the assumption that the claims avoid the prior art, may be reconsidered on the basis of the results of the search of the prior art.

(d) **Illustrations of Particular Situations.** There are three particular situations for which the method for determining unity of invention contained in Rule 13.2 is explained in greater detail:

- (i) combinations of different categories of claims;
- (ii) so-called "Markush practice"; and
- (iii) intermediate and final products.

Principles for the interpretation of the method contained in Rule 13.2, in the context of each of those situations are set out below. It is understood that the principles set out below are, in all instances, interpretations of and not exceptions to the requirements of Rule 13.2.

Examples to assist in understanding the interpretation on the three areas of special concern referred to in the preceding paragraph are set out below.

(e) **Combinations of Different Categories of Claims.** The method for determining unity of invention under Rule 13.2 shall be construed as permitting, in particular, the inclusion of any one of the following combinations of claims of different categories in the same international application:

- (i) in addition to an independent claim for a given product, an independent claim for a process specially adapted for the manufacture of the said product, and an independent claim for a use of the said product, or
- (ii) in addition to an independent claim for a given process, an independent claim for an apparatus or means specifically designed for carrying out the said process, or
- (iii) in addition to an independent claim for a given product, an independent claim for a process specially adapted for the manufacture of the said product and an independent claim for an apparatus or means specifically designed for carrying out the said process,

it being understood that a process is specially adapted for the manufacture of a product if it inherently results in the product and that an apparatus or means is specifically designed for carrying out a process if the contribution over the prior art of the apparatus or means corresponds to the contribution the process makes over the prior art.

Thus, a process shall be considered to be specially adapted for the manufacture of a product if the claimed process inherently results in the claimed product with the technical relationship being present between the claimed product and claimed process. The words "specially adapted" are not intended to imply that the product could not also be manufactured by a different process.

Also an apparatus or means shall be considered to be "specifically designed for carrying out" a claimed process if the contribution over the prior art of the apparatus or means corresponds to the contribution the process makes over the prior art. Consequently, it would not be sufficient that the apparatus or means is merely capable of being used in carrying out the claimed process. However, the expression "specifically designed" does not imply that the apparatus or means could not be used for carrying out another process, nor that the process could not be carried out using an alternative apparatus or means.

(f) **"Markush Practice."** The situation involving the so-called "Markush practice" wherein a single claim defines alternatives (chemical or non-chemical) is also governed by Rule 13.2. In this special situation, the requirement of a technical interrelationship and the same or corresponding special technical features as defined in Rule 13.2, shall be considered to be met when the alternatives are of a similar nature.

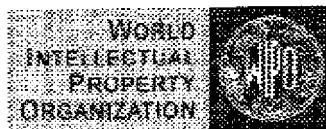
(i) When the Markush grouping is for alternatives of chemical compounds, they shall be regarded as being of a similar nature where the following criteria are fulfilled:

- (A) all alternatives have a common property or activity, and
- (B)(1) a common structure is present, i.e., a significant structural element is shared by all of the alternatives, or
- (B)(2) in cases where the common structure cannot be the unifying criteria, all alternatives belong to a recognized class of chemical compounds in the art to which the invention pertains.

(ii) In paragraph (f)(i)(B)(1), above, the words "significant structural element is shared by all of the alternatives" refer to cases where the compounds share a common chemical structure which occupies a large portion of their structures, or in case the compounds have in common only a small portion of their structures, the commonly shared structure constitutes a structurally distinctive portion in view of existing prior art, and the common structure is essential to the common property or activity. The structural element may be a single component or a combination of individual components linked together.

(iii) In paragraph (f)(i)(B)(2), above, the words "recognized class of chemical compounds" mean that there is an expectation from the knowledge in the art that members of the class will behave in the same way in the context of the claimed invention. In other words, each member could be substituted one for the other, with the expectation that the same intended result would be achieved.

EXHIBIT F



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WIPO

International Treaties
Patent Cooperation Treaty

Article 27

National Requirements

- (1) No national law shall require compliance with requirements relating to the form or contents of the international application different from or additional to those which are provided for in this Treaty and the Regulations.
- (2) The provisions of paragraph (1) neither affect the application of the provisions of Article 7(2) nor preclude any national law from requiring, once the processing of the international application has started in the designated Office, the furnishing:
 - (i) when the applicant is a legal entity, of the name of an officer entitled to represent such legal entity,
 - (ii) of documents not part of the international application but which constitute proof of allegations or statements made in that application, including the confirmation of the international application by the signature of the applicant when that application, as filed, was signed by his representative or agent.
- (3) Where the applicant, for the purposes of any designated State, is not qualified according to the national law of that State to file a national application because he is not the inventor, the international application may be rejected by the designated Office.
- (4) Where the national law provides, in respect of the form or contents of national applications, for requirements which, from the viewpoint of applicants, are more favorable than the requirements provided for by this Treaty and the Regulations in respect of international applications, the national Office, the courts and any other competent organs of or acting for the designated State may apply the former requirements, instead of the latter requirements, to international applications, except where the applicant insists that the requirements provided for by this Treaty and the Regulations be applied to his international application.
- (5) Nothing in this Treaty and the Regulations is intended to be construed as prescribing anything that would limit the freedom of each Contracting State to prescribe such substantive conditions of patentability as it desires. In particular, any provision in this Treaty and the Regulations concerning the definition of prior art is exclusively for the purposes of the international procedure and, consequently, any Contracting State is free to apply, when determining the patentability of an invention claimed in an international application, the criteria of its national law in respect of prior art and other conditions of patentability not constituting requirements as to the form and contents of applications.
- (6) The national law may require that the applicant furnish evidence in respect of any substantive condition of patentability prescribed by such law.
- (7) Any receiving Office or, once the processing of the international application has started in the designated Office, that Office may apply the national law as far as it relates to any requirement that the applicant be represented by an agent having the right to represent applicants before the said Office and/or that the applicant have an address in the designated State for the purpose of receiving notifications.
- (8) Nothing in this Treaty and the Regulations is intended to be construed as limiting the freedom of any Contracting State to apply measures deemed necessary for the preservation of its national security or to limit, for the protection of the general economic interests of that State, the right of its own residents or nationals to file international applications.

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[Table of Contents](#)

133. **What is permitted under the “Markush Practice”?** Rule 13.2 also governs the “Markush practice” wherein a single claim defines alternatives of an invention—a common drafting practice for inventions in the chemical field. In this special situation, the requirement of a technical interrelationship and the same or corresponding special technical features as defined in Rule 13.2, is considered to be met when the alternatives are of a similar nature.

134. When the Markush grouping is for alternatives of chemical compounds, they are regarded as being of a similar nature where the following criteria are fulfilled:

- (i) all alternatives have a common property or activity, and
- (ii) (a) a common structure is present—that is, a significant structural element is shared by all of the alternatives, or
- (b) in cases where the common structure cannot be the unifying criteria, all alternatives belong to a recognized class of chemical compounds in the art to which the invention pertains.

135. When dealing with alternatives, if it can be shown that at least one Markush alternative is not novel over the prior art, the question of unity of invention will be reconsidered by the examiner. Reconsideration does not necessarily imply that an objection of lack of unity will be raised.

136. **Can both intermediate and final products be claimed?** The situation involving intermediate and final products is also governed by Rule 13.2. The term “intermediate” is intended to mean intermediate or starting products. Such products have the ability to be used to produce final products through a physical or chemical change in which the intermediate loses its identity. Unity of invention should be considered to be present in the context of intermediate and final products where the following two conditions are fulfilled:

- (i) the intermediate and final products have the same essential structural element, in that:
 - (a) the basic chemical structures of the intermediate and the final products are the same, or
 - (b) the chemical structures of the two products are technically closely interrelated, the intermediate incorporating an essential structural element into the final product, and
- (ii) the intermediate and final products are technically interrelated, this meaning that the final product is manufactured directly from the intermediate or is separated from it by a small number of intermediates all containing the same essential structural element.

137. Unity of invention may also be considered to be present between intermediate and final products of which the structures are not known—for example, as between an intermediate having a known structure and a final product the structure of which is not known, or as between an intermediate of unknown structure and a final product of unknown structure. In order to satisfy unity in such cases, there must be sufficient evidence to lead one to conclude that the intermediate and final products are technically closely interrelated as, for example, when the intermediate contains the same essential element as the final product or incorporates an essential element into the final product.

Article 2(x)
27(1)
Rule 13

138. An international application which complies with the unity of invention requirements laid down in Rule 13 must be accepted by all the designated and elected Offices, since Article 27(1) does not allow any national law (as defined in Article 2(x)) to require compliance with requirements relating to the contents of the international application different from or additional to those provided for in the PCT.

Rule 11
11.4(a)

139. **What are the physical requirements for the claims?** The physical requirements are the same as those for the description as outlined in paragraph 120. Note that the claims must commence on a new sheet.